

CALTRANS INTERIM GUIDANCE (4/7/2000): PROJECT-LEVEL PM₁₀ HOT-SPOT ANALYSIS

(Minor update/web link corrections 11/27/2000)

(References to FHWA Guidance revised to reflect 9/2001 release 1/11/2002)

OVERVIEW – INTERIM PROJECT-LEVEL PM₁₀ ANALYSIS GUIDANCE

This guidance is being distributed as an “Interim” document. The Federal Highway Administration (FHWA), in September 2001, released national Guidance for performing qualitative PM₁₀ hot-spot analysis for conformity purposes. Caltrans HQ Environmental Program continues to make this interim guidance available, to assist project analysts with screening-level qualitative PM₁₀ studies, until a more specific and formal protocol, for California conditions, can be developed.

CONTEXT - PROJECT-LEVEL AIR QUALITY ANALYSIS

Project-level air quality analysis and reporting serves three main functions:

- Documents "Affected Environment" of a project in terms of air quality, the current status of air quality planning in the region where the project is to be built, and regional Federal Clean Air Act Conformity findings specific to that project.
- Documents project-specific issues and findings required for Conformity under the Federal Clean Air Act.
- Provides information needed to determine impacts, mitigation measures, and significance of impacts for CEQA and NEPA environmental document preparation.

PM₁₀ hot spot analysis is required by the US EPA Transportation Conformity Rule (40 CFR 93.116 and 40 CFR 93.123) in order to determine project-level Conformity in PM₁₀ nonattainment or maintenance areas (Federal standards). Hot-spot analysis for Conformity purposes deals primarily with in-use project emissions, not construction emissions. It is also usually necessary to address construction-stage PM₁₀ emissions from projects for CEQA purposes, since practically all of California is nonattainment for PM₁₀ under State standards. Construction activities lasting five years or less are considered temporary impacts under the Transportation Conformity Rule and are normally not subject to hot-spot analysis requirements (40 CFR 93.123(c)(5)). This guidance deals with qualitative PM₁₀ hot-spot analysis addressing Transportation Conformity requirements under the Federal Clean Air Act Amendments of 1990, but the procedures may also be helpful for CEQA or NEPA analysis purposes.

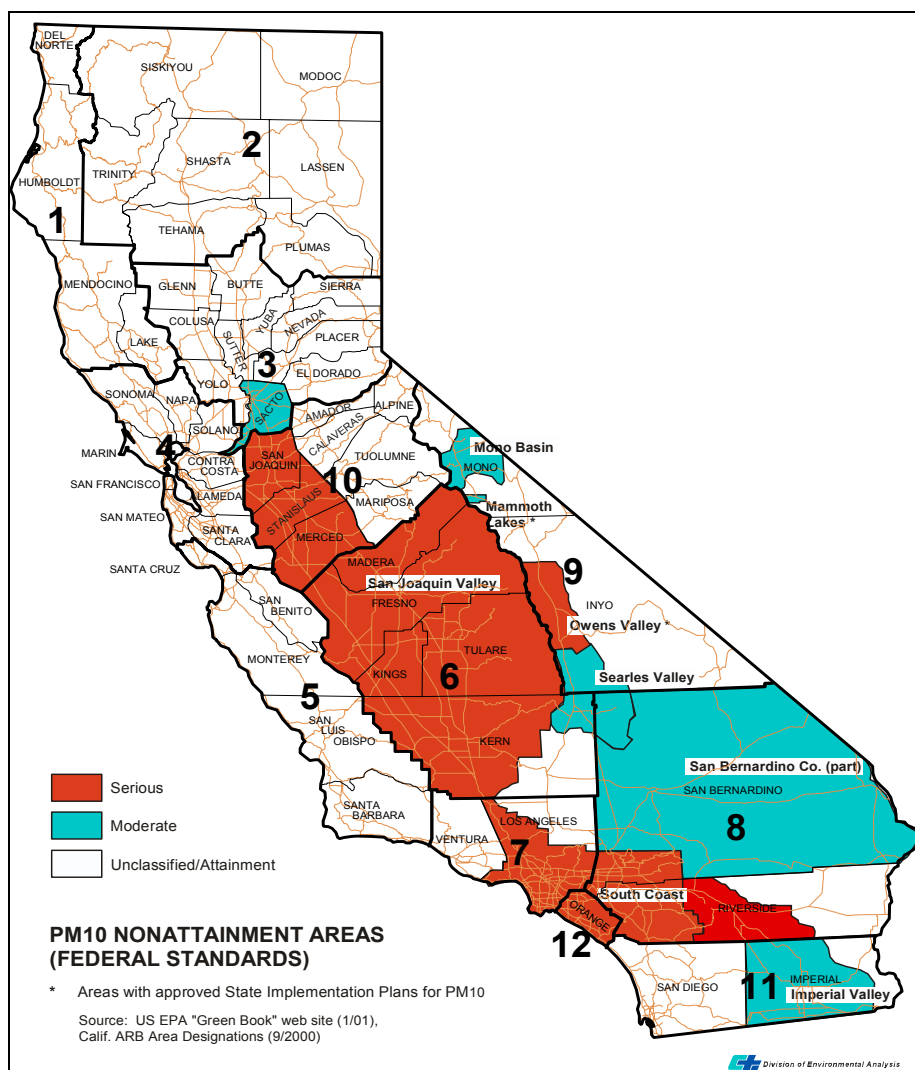
WHAT IS HOT-SPOT ANALYSIS?

Transportation facilities may generate localized high concentrations of air pollutants. This is most likely to occur where large amounts of traffic operate under heavily congested conditions, or where unusually large numbers of diesel-powered vehicles can be expected to occur. Hot Spot Analysis concentrates on air quality impacts which may occur as a direct result of transportation facility operation, and in the immediate vicinity of the facility.

WHERE IS PM₁₀ HOT-SPOT ANALYSIS REQUIRED FOR CONFORMITY PURPOSES?

Projects are subject to hot spot analysis requirements for PM₁₀ only if they are located in a PM₁₀ nonattainment or maintenance area (Federal standards), for purposes of Transportation Conformity.

PM₁₀ hot spot analysis is required, for Conformity purposes, in the California regions shown in the following map and table. Many "Moderate" areas have not experienced a monitored PM₁₀ violation for a number of years. As of January 2000, there are no Maintenance (Attainment with an approved Maintenance Plan) areas in California for the Federal PM₁₀ standard.



PM ₁₀ Nonattainment Area Designation	Location
Serious	Coachella Valley (SIP submitted)
Serious	Owens Valley Planning Area (SIP approved; transportation not significant contributor)
Serious	San Joaquin Valley (SIP submitted)
Serious	South Coast Air Basin (SIP submitted)
Moderate	Mono Basin Planning Area (SIP submitted)
Moderate	Imperial Valley (SIP submitted)
Moderate	Mammoth Lakes Planning Area (SIP approved; contains annual VMT budget for City of Mammoth Lakes)
Moderate	Sacramento County (SIP submitted)
Moderate	San Bernardino Co. except South Coast Air Basin and Searles Valley Planning Area (SIP submitted)
Moderate	Searles Valley Planning Area (SIP submitted)

As with Carbon Monoxide, projects in attainment areas (Federal PM₁₀ standard) may need to perform hot spot analysis for environmental document purposes independent of Conformity analysis requirements. All of California except Lake, Amador, Tuolumne, and Mariposa (outside Yosemite NP) Counties is designated nonattainment for the State PM₁₀ standard. This guidance is not intended to substitute for any thresholds or methodologies for project-level PM₁₀ analysis that may have been adopted by air pollution control districts or air quality management districts for CEQA purposes.

WHAT KIND OF PROJECTS MUST HAVE PM₁₀ HOT SPOT ANALYSIS?

In Federal PM₁₀ nonattainment and maintenance areas, hot-spot analysis must be done for all projects unless they are exempt from *all* conformity analysis requirements. Exempt projects types are listed in "Table 2" (40 CFR 93.126) of the Transportation Conformity Rule. See [Appendix A](#). The hot spot analysis or documentation that the project is exempt must be included in the project-level air quality report, and should be summarized in the project's environmental document or Categorical Exemption/Exclusion determination.

QUANTITATIVE PM₁₀ HOT-SPOT ANALYSIS WAS **NOT** REQUIRED FOR CONFORMITY PURPOSES AT THE TIME THIS GUIDANCE WAS PREPARED. Specific guidance from EPA, published in the Federal Register, is required before the Conformity Rule's PM₁₀ quantitative analysis requirements apply (40 CFR 93.123(b)(4)). Even after EPA guidance is issued, quantitative analysis for conformity purposes will ordinarily be required only for: intersections identified in air quality attainment plan modeling as exceeding standards; intersections with characteristics substantially similar to those modeled in the SIP with exceedances; and facilities which support unusual concentrations of diesel-powered vehicles such as truck and bus terminals, and railroad yards. As of January 2002, EPA has not issued PM₁₀ hot spot analysis guidance; therefore, quantitative PM₁₀ hot spot analysis is NOT required for Conformity at present.

QUALITATIVE PM₁₀ HOT-SPOT ANALYSIS IS REQUIRED FOR ALL PROJECTS IN FEDERAL PM₁₀ NONATTAINMENT OR MAINTENANCE AREAS UNLESS THEY ARE EXEMPT AS DESCRIBED ABOVE.

WHAT ANALYSIS PROTOCOL SHOULD BE USED?

Quantitative Analysis: If a facility will accommodate a large concentration of diesel vehicles, then quantitative analysis for environmental document purposes may be considered. QUANTITATIVE PM₁₀ HOT SPOT ANALYSIS FOR CONFORMITY PURPOSES IS NOT REQUIRED AT THIS TIME.

Qualitative Analysis:

FHWA released national guidance for PM₁₀ Qualitative Analysis in September 2001. This Caltrans Interim Guidance is a screening procedure that may be implemented under the terms of the FHWA guidance. No significant changes have been made to this Interim Guidance since its first release in April 2000. Use of this guidance for PM₁₀ Qualitative Analysis should be noted when a project's NEPA document is circulated to the agency which administers the Interagency Consultation process for Conformity in the project area.

Major projects (EIR/EIS or complicated ND/FONSI being prepared) located in an area that has monitored Federal PM₁₀ violations or which has PM₁₀ concentrations very close to the Federal PM₁₀ standard should be individually taken through regional Interagency Consultation procedures for Conformity purposes.

UC Davis has performed studies for Caltrans indicating that, absent unusual circumstances or existing conditions (monitored) that are above or within about 80% of the Federal standard, a transportation facility in California is unlikely to cause or experience a localized PM₁₀ problem unless the immediate vicinity is already at or above standards. Until a formal protocol is developed and accepted statewide, use the following general procedure:

1. Confirm and document whether the project is located in a PM₁₀ nonattainment or maintenance area (Federal standards).

2. Locate nearby existing PM₁₀ monitoring site(s) operated by an air pollution control district/air quality management district, or other air quality agency. Evaluate and document whether the monitor location is clearly subject to unusual sources of PM₁₀ that may not be present at the project site; use of a monitor meeting "neighborhood-scale" criteria is desirable. Obtain (from the air district if possible, in order to get up-to-date information, or from Air Resources Board publications) records of PM₁₀ monitoring at the site(s). [Note, ARB has this information available via the Internet; see Web addresses at end of this guidance document.] Document whether NAAQS violations have occurred within the last 3 years, and evaluate how close to exceedance the monitor has been if no NAAQS violations have occurred. If no violations have been recorded in the project vicinity by air district monitors, and the monitored concentrations are not close to the NAAQS (meaning within about 80 to 90 percent of the NAAQS concentration threshold), Caltrans/UCD studies strongly suggest that no PM₁₀ hot spot can occur as a result of a typical project. See sample discussion below.
3. Evaluate and document whether unusual circumstances exist that may result in a localized PM₁₀ exceedance while the project is IN OPERATION (not during construction). Unusual circumstances might include, for instance, heavy wintertime sanding operations for snow control, unpaved shoulders in loose material on a road with more than about 500 ADT, or other facility-related issues that could cause high silt loading on the road surface. Also, if the project is likely to have a high concentration of diesel vehicles (typically things like truck/bus terminals, rail yards, possibly weigh stations and rest areas) unusual circumstances may be present and should be investigated.
4. Summarize the evaluation results and make a written commitment to including all PM₁₀ mitigation measures for transportation projects that are required in the (submitted or approved) PM₁₀ SIP or applicable regulations. These mitigation measures will vary by air district and air basin, but could include such things as wetting of exposed soil, and covering of trucks and other dust sources. Itemize the measures required and the project features that address them if possible. For examples of measures that can be used to address PM₁₀ emissions from highway operations, look at the Paved/Unpaved Road PM₁₀ regulations of the San Joaquin Valley Unified Air Pollution Control District and South Coast Air Quality Management District. [Internet addresses for these rules are listed below.] Excerpts of the South Coast and San Joaquin rules as of April 2000 are attached as [Appendix B](#).
5. Document dates, contacts, and results of Interagency Consultation under the Conformity procedures applying to the project area. Until a protocol is developed which can be accepted statewide or as a regional standard (like the CO Protocol), it will be necessary to carry out and document formal Interagency Consultation for each project that might be considered a contributor to violations of the Federal PM₁₀ standards. The assumptions, procedures, and findings of the analysis must be approved through this process. For most projects, consultation can be carried out during the draft environmental document review process by submitting the documents to the agency which administers Interagency Consultation for the area and requesting consideration through the Interagency Consultation process.
6. TEMPORARY CONSTRUCTION DUST EMISSIONS ARE NOT PART OF A QUALITATIVE PM₁₀ HOT SPOT ANALYSIS FOR CONFORMITY PURPOSES. Temporary construction impacts may, however, need to be considered if they are not dealt with specifically in the regional conformity analysis. Consult with the Caltrans District or Region Conformity Coordinator, or the MPO, for more information. Consult with the air district about applicable SIP and CEQA requirements. If the PM₁₀ SIP for the area has not yet been approved by EPA (most have not), but the air district has enacted rules pertaining to PM₁₀ based on the SIP submittal, compliance with those rules should be documented for NEPA and CEQA purposes. San Joaquin Valley Unified APCD and South Coast AQMD have extensive construction PM₁₀ rules.

SAMPLE QUALITATIVE PM₁₀ HOT SPOT PROJECT ANALYSIS FINDING

This sample language is a modified version of documentation prepared for a Los Angeles-area project for Conformity purposes. FHWA has not yet reviewed and approved the language as of January 2000.

Districts 8 and 11 have also prepared environmental documents with qualitative PM hot spot consideration (11-IMP-7, 08-RIV-215) and may be consulted for additional information.

Finding

There is no reason to believe that this project will contribute to a PM₁₀ hot spot that will cause or contribute to violations of the PM₁₀ National Ambient Air Quality Standards (NAAQS).

Discussion

At the regional scale, this project is included in the Approved RTP and TIP. Regional PM₁₀ SIP budget compliance was accounted for during the RTP and TIP conformity determinations, [or the regional conformity determination demonstrated that the Emission Reduction Test(s) were passed]. No violations of the PM₁₀ NAAQS have been recorded at monitoring site(s) near the project, and the monitored concentrations are well below the standards. The PM₁₀ “Air Quality Summaries” for years 1993-1997 published by the Air Resources Board and the _____ AQMD for the (specify location) PM₁₀ monitor (the monitor closest to the project site) showed no monitored violations occurred at or near the project location, and documented PM₁₀ concentrations well below the standard. For example, ARB’s 1997 data show a maximum 24-hour concentration of ____ µg/m³, approximately ____ percent of the federal standard.

Summary of Related Studies

Recent work by U.C. Davis and others suggests that project-level PM₁₀ impacts are insignificant beginning a short distance downwind of the project. These studies document that unless background conditions already contribute to pollutant concentrations that exceed or are close to the NAAQS threshold, project impacts will be negligible. Provided here is a brief summary of three recent studies documenting the insignificant contribution of project-level PM₁₀ emissions.

“Final Report: Traffic Generated PM₁₀ Hot Spots” (Ashbaugh et al., 1996): The study evaluated PM₁₀ associated with a Sacramento area intersection (Florin Road and Stockton Boulevard). The authors conducted a field study involving PM₁₀ sampling during August 1995. The study concluded: “All the [PM₁₀] species measured at the intersection dispersed almost completely back to background levels within 100 meters of the intersection. Furthermore, the measured and predicted 24-hour concentration increases due to the intersection were about 15 µg/m³, well below the current PM₁₀ standard of 150 µg/m³. For this reason, and given the uncertainties associated with surface silt loadings, particularly for projects that have not yet been built, it appears that regional emission budgets would be a better approach to controlling possible exceedances of the [national ambient air quality] standard.”

“Final Report: Wintertime Traffic Generated PM₁₀ Hot Spots” (Ashbaugh et al., 1998): The study evaluated PM₁₀ associated with a heavily-traveled, congested Sacramento area intersection (Sunrise Boulevard and Greenback Lane). The authors conducted a field study involving PM₁₀ sampling during February and March 1997. The study concluded: “The primary objective of this study was to investigate whether a large intersection was likely to be a PM₁₀ “hot spot” during periods of low wind speed and poor dispersion... The concentrations at the SW Far site were higher than at the intersection in nearly all cases, which suggests that the intersection was not acting as a “hot spot” of PM₁₀... The highest measured concentrations did not approach the PM₁₀ standard, and were sustained for only a few hours. Thus, the 24-hour average was even lower than the peak concentrations... The Sunrise Boulevard/Greenback Lane intersection is not a “hot spot” of PM₁₀ emissions under the meteorological and traffic conditions measured. This finding confirms the earlier work at Stockton Boulevard/Florin Road, a much smaller intersection. The highest concentrations measured during this study occurred during stagnant conditions, as expected, but they did not approach the ambient air quality standard and were centered on the intersection.”

“Draft Final Report: Multiple Air Toxics Exposure Study in the South Coast Air Basin, MATES-II” (SCAQMD, 1999): The study evaluated air toxics concentrations, including

toxic particulate matter emitted by diesel-powered motor vehicles, and assessed the relative concentrations at regional scale and microscale sites. The study focused on air toxics, finding that particulate matter was responsible for the vast majority of mobile source-related air toxics health risks. In general, the study further confirms the U.C. Davis PM₁₀ studies' findings regarding microscale PM. The MATES-II study monitored air toxics at three microscale sites specifically chosen "because of influence and proximity to major mobile sources (e.g., congested freeways)." The South Coast Air Quality Management district concluded, in part: "No significantly higher levels of key mobile source toxics compounds, benzene and 1,3 butadiene, were found at any of the microscale sites, including those sited near freeways specifically for mobile source influences." In addition, the study concluded: "Because risk levels ascribed to nearby sources inventoried for the study are generally much lower than region-wide risk levels, region-wide risks tend to overwhelm any potential local "hot spots."

References for Study Summary Descriptions

- Asbaugh et al., 1996. Final Report: Traffic Generated PM₁₀ Hot Spots. UCD-ITS-RR-96-17 Prepared for the California Department of Transportation, under Caltrans Contract No. 53V606 A2. Prepared by L. Ashbaugh, R. Flocchini, D. Chang, V. Garza, O. Carvacho, T. James, R. Matsumura. Air Quality Group, Crocker Nuclear Laboratory, University of California, Davis. August.
- Ashbaugh et al., 1998. Final Report: Wintertime Traffic Generated PM₁₀ Hot Spots. Prepared for the California Department of Transportation. Contract No. 43X878. Prepared by L. Ashbaugh, R. Flocchini, R. Matsumura, T. James, O. Carvacho, C. Tsubamoto, M. Brown. Air Quality Group, Crocker Nuclear Laboratory, University of California, Davis. September 3.
- SCAQMD, 1999. Draft Final Report: Multiple Air Toxics Exposure Study in the South Coast Air Basin, (MATES-II). Prepared by the South Coast Air Quality Management District. November. 1999

OTHER SAMPLE LANGUAGE

Examples from FHWA comments or approved environmental documents will be added here from time to time.

FHWA Comments re. 8-RIV-215 DEIS (7/26/1999 letter):

Comment refers to both DEIS and Air Quality technical report.

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14. Page 4-1, Section 4.1.1.1: Include the following: "A qualitative consideration was given to the build alternatives' effect on existing and new PM₁₀ violations at the microscale level. Given the build alternatives' characteristics and location as well as efforts and plans to attain the PM₁₀ standard, it is determined that the project will not worsen any existing PM₁₀ violation or create a new PM₁₀ violation."

...

ADDITIONAL RESOURCES

Caltrans External Web Site:

<http://www.dot.ca.gov/hq/env/air/index.htm>

CO hot-spot analysis guidance and models

California Air Resources Board:

Transportation and air quality planning site:

<http://www.arb.ca.gov/planning/planning.htm>

Web site for air quality monitoring data:

<http://www.arb.ca.gov/aqd/aqd.htm>

Air Pollution Control District Rules database:

<http://www.arb.ca.gov/drdb/drdb.htm>

Air Pollution Control District roster:

<http://www.arb.ca.gov/capcoa/roster.htm>

San Joaquin Valley Unified Air Pollution Control District:

Paved and Unpaved Road Requirements:
(Download “Rule8060.pdf”)

<http://www.valleyair.org/rules/curnrules/r8060.pdf>

South Coast Air Quality Management District:

Paved and Unpaved Road Requirements:

<http://www.aqmd.gov/rules/html/r1186.html>

(see Appendix for language from these requirements)

US EPA

Transportation Conformity Regulations (40 CFR 93 Subpart A):

http://www.access.gpo.gov/nara/cfr/waisidx_99/40cfr93_99.html

Transportation Conformity Web Page:

<http://www.epa.gov/oms/transp/traqconf.htm>

US DOT

FHWA Air Quality Web Page:

<http://www.fhwa.dot.gov/environment/aq.htm>

FHWA Conformity Web Page:

<http://www.fhwa.dot.gov/environment/conform.htm>

Appendix A: Projects Exempt from All Conformity Analyses

40 CFR 93.126 states: “Notwithstanding the other requirements of this subpart, highway and transit projects of the types listed in Table 2 of this section are exempt from the requirement to determine conformity. Such projects may proceed toward implementation even in the absence of a conforming transportation plan and TIP. A particular action of the type listed in Table 2 of this section is not exempt if the MPO in consultation with other agencies (see Sec. 93.105(c)(1)(iii)), the EPA, and the FHWA (in the case of a highway project) or the FTA (in the case of a transit project) concur that it has potentially adverse emissions impacts for any reason. States and MPOs must ensure that exempt projects do not interfere with TCM implementation.” Table 2 is reproduced here.

TABLE 2--EXEMPT PROJECTS**Safety**

Railroad/highway crossing.
Hazard elimination program.
Safer non-Federal-aid system roads.
Shoulder improvements.
Increasing sight distance.
Safety improvement program.
Traffic control devices and operating assistance other than signalization projects.
Railroad/highway crossing warning devices.
Guardrails, median barriers, crash cushions.
Pavement resurfacing and/or rehabilitation.
Pavement marking demonstration.
Emergency relief (23 U.S.C. 125).
Fencing.
Skid treatments.
Safety roadside rest areas.
Adding medians.
Truck climbing lanes outside the urbanized area.
Lighting improvements.
Widening narrow pavements or reconstructing bridges (no additional travel lanes).
Emergency truck pullovers.

Mass Transit

Operating assistance to transit agencies.
Purchase of support vehicles.
Rehabilitation of transit vehicles. *
Purchase of office, shop, and operating equipment for existing facilities.
Purchase of operating equipment for vehicles (e.g., radios, fareboxes, lifts, etc.).

* In PM₁₀ nonattainment or maintenance areas, such projects are exempt only if they are in compliance with control measures in the applicable implementation plan.

Construction or renovation of power, signal, and communications systems.

Construction of small passenger shelters and information kiosks.

Reconstruction or renovation of transit buildings and structures (e.g., rail or bus buildings, storage and maintenance facilities, stations, terminals, and ancillary structures).

Rehabilitation or reconstruction of track structures, track, and trackbed in existing rights-of-way.

Purchase of new buses and rail cars to replace existing vehicles or for minor expansions of the fleet. *

Construction of new bus or rail storage/maintenance facilities categorically excluded in 23 CFR part 771.

Air Quality

Continuation of ride-sharing and van-pooling promotion activities at current levels.

Bicycle and pedestrian facilities.

Other

Specific activities which do not involve or lead directly to construction, such as: Planning and technical studies.

Grants for training and research programs.

Planning activities conducted pursuant to titles 23 and 49 U.S.C. Federal-aid systems revisions.

Engineering to assess social, economic, and environmental effects of the proposed action or alternatives to that action.

Noise attenuation.

Emergency or hardship advance land acquisitions (23 CFR 712.204(d)).

Acquisition of scenic easements.

Plantings, landscaping, etc.

Sign removal.

Directional and informational signs.

Transportation enhancement activities (except rehabilitation and operation of historic transportation buildings, structures, or facilities).

Repair of damage caused by natural disasters, civil unrest, or terrorist acts, except projects involving substantial functional, locational or capacity changes.

* In PM₁₀ nonattainment or maintenance areas, such projects are exempt only if they are in compliance with control measures in the applicable implementation plan.

Appendix B:

Example Paved and Unpaved Road Requirements from the South Coast Air Quality Management District

The Text provided below is from the South Coast Air Quality Management District's "Rule 1186. Pm₁₀ Emissions From Paved And Unpaved Roads, And Livestock Operations," Section D, in effect in April 2000. The complete rule is available from the air district's Internet site at:
<http://www.aqmd.gov/rules/html/r1186.html>.

Paved Roads

- (1) Any owner or operator of a paved public road on which there is visible roadway accumulations shall begin removal of such material through street cleaning within 72 hours following any notification of the accumulation and shall completely remove such material as soon as feasible. If removal cannot be completed within 10 days of notification, the owner/operator shall notify the Executive Officer and provide information on the location of the accumulation(s) and estimated removal completion date.
- (2) Any government or government agency which contracts to acquire street sweeping equipment or street sweeping services for routine street sweeping on public roads that it owns and / or maintains, where the contract date or purchase or lease date is January 1, 2000 or later, shall acquire or use only certified street sweeping equipment.
- (3) Any government or government agency subject to the requirements of paragraph (d)(2) and/or its contractors shall operate and maintain the certified street sweeping equipment in accordance with the manufacturer's specifications.

Unpaved Roads

- (4) Any owner or operator of an unpaved public road shall annually treat unpaved roads that have greater than the average ADT of all unpaved roads in its jurisdiction (as determined by the owner/operator) beginning January 1, 1998 and each of the 8 calendar years thereafter by either:
 - (A) Paving at least 1 mile of such roads using typical roadway materials; or
 - (B) Applying chemical stabilization to 2 miles of such roads in sufficient quantities to maintain a stabilized surface; or
 - (C) Taking one or more of the following actions on 3 miles of such roads:
 - (i) Installing signage at 1/4 mile intervals that prohibits vehicular speeds in excess of 15 miles per hour (mph) as authorized by California Vehicle Code section 22365 and/or
 - (ii) Installing speed control devices (e.g., speed bumps) every 500 feet and/or
 - (iii) Maintaining the roadway in such a manner that inhibits vehicular speeds in excess of 15 mph to 3 miles of unpaved roads in its jurisdiction.

(Note: Treatment in excess of the annual requirement can be credited toward future year requirements.)

Example Paved/Unpaved Road Requirements – San Joaquin Valley Unified Air Pollution Control District

The Text provided below is from the San Joaquin Valley Unified Air Pollution Control District's "Rule 8060 - Fugitive Dust Requirements For Control Of Fine Particulate Matter (Pm-10) From Paved And Unpaved Roads," in effect in April 2000. The rule is available from the air district's Internet site: <http://www.valleyair.org/rules/currnrules/r8060.pdf>.

Paved Roads

- 5.1 Any agency, or owner, or operator having jurisdiction over, or ownership of, public or private paved roads shall construct, or require to be constructed, all new or modified paved roads in conformance with the American Association of State Highway and Transportation Officials (AASHTO) guidelines for width of shoulders and median shoulders as specified below:
- 5.1.1 New construction, modification, or approvals of paved roads with projected average daily vehicle trips of 500 vehicles or more shall be constructed with paved shoulders having the following minimum widths:
- | Annual Average Daily Vehicle Trips | Minimum Shoulder Width |
|------------------------------------|------------------------|
| 500-3000 | 4 feet |
| 3000 or greater | 8 feet |
- 5.1.2 Where curbing is constructed adjacent to and contiguous with the travel lane or paved shoulder of a road, the shoulder width design standards specified in subsection 5.1.1 shall not be applicable.
- 5.1.3 The paved shoulder width requirements set forth in subsection 5.1.1 are not applicable at intersections or where auxiliary entry and exit lanes are constructed adjacent to and contiguous with the roadway.
- 5.1.4 The paved shoulder width requirements set forth in subsection 5.1.1 are not applicable where the requirements would conflict with environmental, historical, or archaeological considerations. Examples of environmental conflicts include the need to minimize road width when constructing a road through mountainous terrain or wetlands areas.
- 5.1.5 Where paved roads are constructed, or modified with medians and have projected annual average daily vehicle trips of 500 vehicles or more, the medians shall be constructed with paved shoulders having a minimum width of four feet adjacent to the traffic lanes unless:
- 5.1.5.1 The medians are solidly paved, or
- 5.1.5.2 Medians of roads having speed limits set at or below 45 miles per hour are constructed with curbing, or
- 5.1.5.3 Medians are landscaped and maintained with grass or other vegetative ground cover.
- 5.1.6 In lieu of the paving and landscaping requirements, the agency, owner, or operator may use application of oils or other approved dust suppressant chemicals to control shoulder and median areas to the specified required width. The material shall be reapplied and maintained in accordance with the manufacturer's recommendations.

Unpaved Roads

- 5.2 No person shall construct or otherwise utilize a new unpaved road or road segment, after the effective date of this regulation, without application of one of the control measures set forth in subsections 5.2.1 through 5.2.3 below. Where soil moisture is sufficient to limit dust emissions

equal to or less than the 40% opacity level, no action is required. Where control measures set forth in subsections 5.2.1 through 5.2.3 are required, unpaved roads or road segments shall not be subject to the Visible Dust Emissions (VDE) limits as defined in Rule 8010, section 3.31.

- 5.2.1 At least 50% of the length of the new unpaved road surface is controlled by application of chemical suppressant or other equivalent stabilization in accordance with manufacturer's recommendations, or
- 5.2.2 The entire new unpaved road surface is controlled by application of water at least one time per week, or
- 5.2.3 At least 25% of the length of the new unpaved road surface is paved to provide a permanent stable surface.